

Masami MIZUSHIMA*: **Remarks in the Alsinoideae—
Caryophyllaceae**

(Critical studies on Japanese plants 15)**

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(日本植物寸評 15)**

(Pl. V—VI)

During the course of my study on the subfamily Alsinoideae (*s. lato*) of the family Caryophyllaceae within the flora of Sino-Japanese region, it became necessary taxonomically and nomenclaturally to make the following remarks. The specimens consulted were placed at my disposal on loan through the courtesy of the Directors of the Herbarium of the University of Tokyo (TI) and the Herbarium of Muséum National d'Histoire Naturelle, Laboratoire Phanérogamie (P), Paris. Without their generosity the present paper would not be prepared.

1. *Stellaria anhweiensis* Migo and *Arenaria petiolata* Hayata.

The former is based on the specimen collected by Dr. H. Migo on June 3, 1945 in Hsi-hsien, Anhwei province of central China (TI). It was compared by Dr. Migo with *S. media* (L.) Vill., and was said to differ therefrom "in having the smaller and hairy habit, glabrescent sepals and not tuberculate but foveolate seeds." Examining the holotype specimen, it is undoubtedly identical with the temperate Euro-Siberian *Moehringia trinervia* (L.) Clairv. Though the specimen is in fruit, the leaves mostly triple-nerved and ciliate on margins, the seeds coffee-brown, smooth, shining and strophiolate, manifestly represent the characteristics of that species.

Arenaria petiolata Hay. is based on the flowering specimen collected in Nanto, Formosa (March 1910, T. Kawakami—TI), and it was said to be near *A. serpyllifolia* L., but different from it by the petiolate leaves and very much smaller petals. The holotype specimen cited above agrees also with *Moehringia trinervia*, as was already mentioned briefly by Ohwi (1935) in Japanese without satisfying the technical requirements of nomenclature.

* Makino Herbarium (MAK), Tokyo Metropolitan University, Fukazawa-1., Setagaya, Tokyo. 東京都立大学理学部, 牧野標本館.

** Contribution no. 18 from the Makino Herbarium of Tokyo Metropolitan University.

The Japanese plants now in discussion were segregated by Maximowicz from *M. trinervia* as *M. platysperma* in 1873, and the latter epithet was used at the specific or varietal rank by the subsequent workers of the Japanese flora down to the early 1950's. Ohwi (1953, '65) considered the Japanese plants to be identical with *M. trinervia*, while McNeill (1962) retained as a species. According to Maximowicz the Japanese plants have longer and denser pubescence than *M. trinervia*, and have strongly compressed seeds, half in size of the latter, marginate, and minutely strophiolate. Judging from his description, however, it is convincing that he examined immature seeds. While the capsules are young, needless to say, the seeds are far more smaller than 1 mm across deserving to describe as "half the size of *M. trinervia*." In full maturity the seeds are lenticular, 0.9—1.1 mm across, and acutish marginally, if any obsoletely marginate. The lacinate or digitate strophioles are inconspicuous to 1/3 as wide as the seed body, being the same in size as in the continental plants. The length of hairs on vegetative parts varies to some extent, and the term "puberulent" is appropriately adopted to the Japanese plants especially in the fruiting season. In the duplicate specimens sent to Maximowicz by T. Makino for identification ("Max 47"—MAK 8914 and perhaps 8903), the hair on the stem is eglandular, recurved, uniseriate and of 3—6 cells. The hair on the petiole is longer and of up to 10 cells. Since these specimens are believed to be cited in Makino's articles entitled "Notes on Japanese plants I" in the Botanical Magazine, Tokyo, 2: 221 (1888) under *Arenaria* (Moehringia) *platysperma* Maxim., the pilosity seen in the above cited specimens is considered to be authenticated by Maximowicz. On this ground plants from Finland, Denmark, and the western parts of the Soviet Union kept in MAK were compared. It revealed that the mode of pilosity, including the number of cells constituting the cauline hairs, is basically the same as in the Japanese plants, though the petiolar hairs are sometimes a little larger in number of cells attaining up to 12. Though the number of cells may *a priori* be determined, the length of cells and the density of hairs appear to depend on the environmental conditions and the developmental stages of individual plant. Even in one and the same individual the hairs are denser early in the flowering season, but they become thinner towards late in the fruiting season by an elongation of internodes and shedding of hairs. Therefore the specimen examined by Maximowicz can be regarded as an extreme form with denser and longer hairs than usual. Consequently *M. platysperma* Maxim. merges into the range of variation of *M. trinervia* (L.) Clairv. Thus the nomenclature concerning

these entities becomes as follows:

Moehringia trinervia (L.) Clairv.: Ohwi, Fl. Jap. 492 (1953); *ibid.* ed. angl. 426 (1965)—Tutin et al. (Ed.), Fl. Europ. **1**: 124 (1964).

M. platysperma Maxim. in Bull. Acad. Imp. Sci. St.-Pét. **18**: 373 (1873)—Matsumura, Ind. Pl. Jap. **2** (2): 85 (1912)—Miyabe et Kudo in Trans. Sapporo Nat. Hist. Soc. **6**: 167 (1917)—Hara in Bot. Mag. Tokyo **48**: 902 (1934)—Ohwi in Act. Phytotax. Geobot. **4**: 231 (1935)—Masamune, List Vasc. Pl. Taiwan **43** (1954)—McNeill in Notes Roy. Bot. Gard. Edinb. **24**: 131 (1962).

Arenaria (*Moehringia*) *platysperma* Maxim. apud Makino in Bot. Mag. Tokyo **2**: 221 (1888).

A. platysperma (Maxim.) Makino, *ibid.* **6**: 49 (1892).

A. platysperma (Maxim.) Yatabe in Bot. Mag. Tokyo **6**: 133 (1892); Nippon-shokubutsu-hen 232 (1900).

A. platysperma (Maxim.) Fernald in *Rhodora* **21**: 7 (1919).

Moehringia trinervia var. *platysperma* (Maxim.) Makino, Ill. Fl. Jap. 592, f. 1776 (1940).

A. petiolata Hayata, Icon. Pl. Formos. **3**: 38 (1913), e typo.

Stellaria anhweiensis Migo in Journ. Shanghai Sci. Inst. ser. **3**, **4**: 145 (1939), e typo—syn. nov.

2. “*Stellaria uliginosa* Murr.” of Franchet, *Plantae Delavayanae* 98 (1889).

Franchet identified the specimen collected by J.-M. Delavay, no. 1127 (Yun-nan, in pascuis ad pedem Tsang-chang, supra Tali, alt. 2000 m; 28 mart. 1884), as *Stellaria uliginosa* Murr. (= *S. Alsine* Grimm). Examining the very specimen, it was found to belong to the temperate eastern Asiatic race, *S. Alsine* var. *undulata* (Thunb.) Ohwi, in having the petals more or less equalling the sepals and with their lobes oblong resulting the slightly broader shape than those in the European plants. Though the size and shape of petal-lobes show an individual variation to some extent, they attain their maximum size in April in the warmer regions of Japan. This is observed in the midst of the flowering season when the plants have 8 to 10 stamens in the terminal flowers of lower forks in the inflorescence. Delavay's no. 1127 specimen appears to be collected in this season. The number of stamens in a flower fluctuates, roughly speaking, correlatively with the size of petals. Such a phenomenon may be observed in sunny places with adequate moisture in soil, e. g. in rice paddies before the sowing season.

Stellaria Alsine Grimm var. **undulata** (Thunb.) Ohwi in Act. Phytotax.

Geobot. **10**: 136 (1941); Fl. Jap. ed. angl. 430 (1965)—Mizushima in Journ. Jap. Bot. **40**: 250 (1965).

“*S. uliginosa* Murr.”: Franch., Pl. Delav. 98 (1889), e Delavay 1127.

3. *Stellaria Delavayi* Franch.

This name is based on the no. 3131 specimen of Delavay's collection (Yun-nan, in pratis ad latera collium prope Houang-li-pin, alt. 2000 m.; fl. 22 Sept. 1887). I have wondered if *S. Delavayi* has been identical with my f. *scabrifolia* of *S. monosperma* var. *monosperma* for these ten years. Among the eastern Asiatic species of the genus *Stellaria*, the flowering season ‘fl. 22 Sept.’ is a feature solely attributed to the temperate east Asiatic endemic, *S. monosperma* Buch.-Ham. One more feature of the last mentioned species is a recurved tip of the sepals in flower.

Examining the no. 3131 specimen, the stem branches from near the base and attains to 33 cm long including the inflorescence. The branch is hirsute in the lower half nearly in two lines and becomes evenly so upwards. The leaves are pubescent on both surfaces and pustulately ciliate on margins. In the type specimen of the f. *scabrifolia* (Henry's no. 13562 US-no. 459633), the leaves are glabrous beneath. This difference is not significant, because the pubescence becomes denser as the light intensity increases from the habitat to habitat where individual plant grows. Since *S. monosperma* is a forest species, the leaf-blades are usually glabrous or nearly so. As clearly seen on the label, the no. 3131 specimen was collected in meadow on hillside where sunlight is apparently more intense than in forests. The denser pubescence of *S. Delavayi* is, therefore, not accounted to be a diagnostic character. Dissection of fruits, though immature, and of flowers revealed that the characters of sepals, petals, pistils, and the number of stamens (of five instead of ten in *S. monosperma* var. *monosperma*) agreed with those of the f. *scabrifolia*. Consequently *S. Delavayi* is considered to fall into the range of variation of *S. monosperma* and is synonymous with f. *scabrifolia*. The following reduction is proposed until many more specimens from a variety of localities of *S. Delavayi*-type come to hand, being able to determine its proper ranking in nomenclature and taxonomy.

***Stellaria monosperma* Buch.-Hamilt. var. *monosperma* f. *scabrifolia* Mizushima in Journ. Jap. Bot. **32**: 249, fig. 1-S (1957).**

S. Delavayi Franch., Pl. Delav. 97 (1889), e typo—syn. nov.

4. “*Cerastium pumilum* Curtis” of Franch., Pl. Delav. 101 (1889).

One specimen collected by Delavay from “Yun-nan, in cultis montis Tche-chang,

prope Tang-Tchouan, 1 jun. 1882" is cited. Two individuals more or less 8 cm high are mounted on the sheet. The flowers are aggregated with the pedicels 2-4 mm long. The sepals are 4-5 mm long in the terminal flowers of the lowest fork. Though the hirsute hairs do not surpass the top of sepals and the petals are ciliate near the base, this specimen is most probably referred to *C. glomeratum* Thuill. in its short pedicels as long as the fruiting sepals (not 2-4 times in length as in *C. pumilum*), the compact inflorescence, and 10 stamens (not fluctuate between 5-10 as in *C. pumilum*). The habitat "cultis montis . . ." fits the cosmopolitan *C. glomeratum*, while the Mediterranean *C. pumilum* is not known to be distributed eastwards beyond the western part of Asia Minor. Thus the identification of Delavay's collection should be corrected as:

Cerastium glomeratum Thuill.: Mizushima in Sci. Rep. Tohoku Univ. 4 ser. 29 (3-4): 286 (1963)—Tutin et al. (Ed.), Fl. Europ. 1: 144 (1964).

C. viscosum L.: Ohwi, Fl. Jap. ed. angl. 428 (1965).

"*C. pumilum* Curt.": Franch., Pl. Delav. 101 (1889), e specim. P-108-7/66.

5. *Cerastium vulgatum* L. α . *angustifolium*, β . *brevifolium*, and γ . *acutifolium* Franch.

Franchet's *C. vulgatum* for Yunnan plants is conclusively a mixture of two species as below. The var. *angustifolium* is based on Delavay's no. 1694 (Yun-nan, in pascuis ad pedem montis Tsang-chan, supra Tali, alt. 2000 m.; 28 mart. 1884—cf. Pl. Delav. p. 101), but on the no. 1694 specimen which I examined attached Delavay's original label with his handwriting showing different locality and date of collection. According to it, the two plants on the sheet (P-108-4/66) were collected on Mt. Lo-pin-chan (Lankong), 3000 m alt. on Oct. 15, 1885. This specimen is referable to the warmer temperate eastern Asiatic *C. holosteoides* Fries ssp. *triviale* (Link) Möschl var. *hallaisanense* (Nak.) Mizush. in its herbaceous bracts (upper ones are a little scarious on margins), the glabrous petals and stamens, and in the pedicels of lower forks of the inflorescence only 2 times as long as the fruiting sepals. The scarious-margined upper bracts show that the specimen belongs to an intermediate form between the cooler temperate var. *triviale* and its vicariant, var. *hallaisanense*. The var. *triviale* has all the bracts excepting the lowest pair distinctly scarious-margined. The varietal name *hallaisanense* was published in 1914, but Franchet's var. *angustifolium* in 1889, therefore the former epithet should be replaced by the latter as below.

The var. *brevifolium* Franch. is based on the Delavay's specimen without number

(Yun-nan, in pratis uliginosis ad Kan-hay-tze, in monte Hee-chan-men, supra Lan-kong, alt. 2800 m.; 31 jul. 1885), and the var. *acutifolium* Franch. is based on the Delavay's no. 1221 (not 121 as was cited in Pl. Delav. p. 102) from "Yun-nan, in pratis ad juga nivalia Likiang, alt. 3500 m.; 10 jul. 1884". Both the "varieties" differ from *C. holosteoides* in their petals surpassing the sepals and few but long barbed as in the stamens, and in their pedicels in the lower forks of the inflorescence 3-9 times as long as the fruiting sepals. These characters account for their identity with the east Asiatic alpine *C. rubescens* Mattf. (= *C. furcatum* of the Russian authors). Thus the nomenclature is corrected as follows:

Cerastium holosteoides Fries subsp. ***triviale*** (Link) Möschl var. ***angustifolium*** (Franch.) Mizushima, comb. nov.

C. vulgatum L. α . *angustifolium* Franch., Pl. Delav. 101 (1889), e specim. Delav. 1694.

C. vulgatum var. *hallaisanense* Nakai in Fedde, Rep. Sp. Nov. **13**: 268 (1914)—Ohwi, Fl. Jap. ed. angl. 428 (1965).

C. holosteoides subsp. *triviale* var. *hallaisanense* (Nak.) Mizush. in Journ. Jap. Bot. **38**: 149 (1963); in Sci. Rep. Tohoku Univ. 4 ser. **29** (3-4): 282 (Dec. 1963).

Cerastium rubescens Mattf. in Notizbl. Bot. Gart. u. Mus. Berl.-Dahlem **11**: 333 (1932)—Mizushima, l. c. 287 (Dec. 1963).

C. vulgatum L. β . *brevifolium* Franch., Pl. Delav. 101 (1889), e specim. P-108-2/66—syn. nov.

C. vulgatum γ . *acutifolium* Franch., ibid. 102 (1889), e specim. Delav. 1221 (nunquam 121)—syn. nov.

6. "*Drymaria cordata* Willd." of Franch., Pl. Delav. 102 (1889).

There are two specimens cited, and they are from "Yun-nan, in silvis ad Ki-chan, prope Tali, alt. 2000 m.; 10 sept. 1885 (not 1884 as was cited), Delavay 1900" and "29 Sept. 1887". At one sight the plants are easily identified as the south-eastern Asiatic *D. diandra* Bl. (= *D. cordata* ssp. *diandra* (Bl.) Duke) in having the obovate or pyriform flower-buds, the prominently triple-nerved sepals with the minutely glandular-papillate midvein. While the Neotropical *D. cordata* has narrowly ovate flower-buds acute at the apex and usually densely glandular-papillate (practically glabrous in the var. *pacifica* Mizush.). J. Duke reduced *D. diandra* to a subspecies of *D. cordata* weighing with the occurrence of intermediates especially in Africa, but I prefer to retain *D. diandra* as a separate species. The African plants of *D. cordata* and *D. diandra* differ from the typical American and Asiatic

material respectively. *D. diandra* in central African differs from the Asiatic plants in their bigger flowers, higher number of stamens, and in the prominent staminodial cups. The flower-buds often lack the pyriform shape which distinguishes *D. diandra* from *D. cordata*. The last mentioned evidence is suspected to be a result of an extensive introgression happened in the new territory for both of the species, after being introduced by Europeans, Asians and/or Americans.

Drymaria diandra Bl.: Mizushima in Journ. Jap. Bot. **32**: 79, fig. 1-A (1957).

D. cordata Willd. subsp. *diandra* (Bl.) Duke in Ann. Missouri Bot. Gard. **48**: 253, fig. 18-D, E (1961).

“*D. cordata* Willd.”: Franch., Pl. Delav. 102 (1889), e specim. Delav. 1900.

Explanation of Plates V and VI

Pl. V. *Stellaria Delavayi* Franch. Upper: the holotype specimen, Delavay no. 3131 (P-108-17/66). \times ca. 1/3. Lower: portion of the same specimen showing the pubescence of leaves. \times 2.5.

Pl. VI. 1: *Cerastium vulgatum* α . *angustifolium* Franch. showing the relative length of the pedicel and the calyx longer than the petals. \times ca. 3. 2: *C. vulgatum* β . *brevifolium* Franch. showing the relative length of the pedicel and the calyx in fruiting stage. \times ca. 3. 3: *C. vulgatum* γ . *acutifolium* Franch. showing the petals 1.5 times as long as the calyx. \times ca. 3. 4: the same variety in somewhat later stage showing the elongated pedicel. \times ca. 3.

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東亜に産するナデシコ科ハコベ亜科(広義)の種類には再検討を必要とするものが多い。其の中で以下に記す6種,殊に Franchet の *Plantae Delavayanae* (1889-90) に記されたものの一部を論評する。

1) *Stellaria anhweiensis* Migo (1939) と *Arenaria petiolata* Hayata (1913) とは共に欧亜温帯に広布する *Moehringia trinervia* Clairv. と同物である。なお日本から記載された *M. platysperma* Maxim. タチハコベが *M. trinervia* の異名になることの理由を論じた。

2) Delavay no. 1127 標本を Franchet は *Stellaria uliginosa* Murr. としたが,これは日本にも普通な *S. Alsine* var. *undulata* Ohwi ノミノフスマである。

3) 雲南省産の Delavay no. 3131 標本にもとづいて記された *Stellaria Delavayi* Franch. は,筆者が1957年に発表した *S. monosperma* f. *scabri folia* と同じものであった。全体に多毛なのは日当りの良い丘陵中腹の草原に生えていたからであろう。

4) Franchet が *Cerastium pumilum* Curt. と同定した Delavay 採集の標本は世界広布の雑草 *C. glomeratum* Thuill. オランダミミナグサである。

5) *Cerastium vulgatum* var. *angustifolium*, *brevifolium*, *acutifolium* Franch. と云うものは 2 種の混合物であった。即ち var. *angustifolium* は *C. holsteoides* var. *hallaisanense* Mizush. ミミナグサであるが、残る二者は *C. rubescens* Mattf. 即ちタカネミミナグサの母種に当るものであることが分った。

6) Franchet は Delavay no. 1900 標本を新熱帯原産の *Drymaria cordata* Willd. であるとしたが、やはり東南アジア原産の *D. diandra* Bl. ヤンバルハコベであった。Duke (1961) は中間形が存在するからとの理由で、*D. cordata* ssp. *diandra* (Bl.) Duke としたが、筆者が彼の説を採らない訳をも述べた。

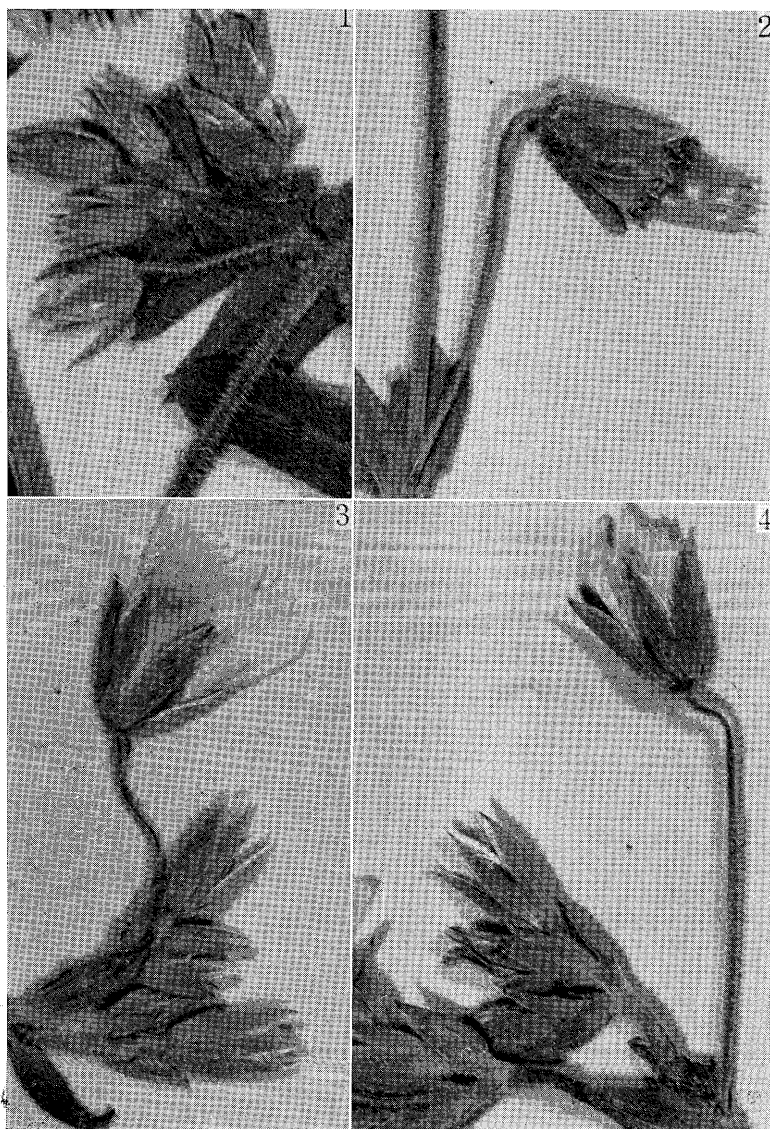
□ Bold, H. C.: **Morphology of plants** ed. 2 pp. 541 (Harper International edition, ¥2, 160 (1967) 1957 に出た版にかなり手を加えた新版。版を大きくして二段組みとし、挿画の大部分を適切なサイズに改め、写真を多くとりかえたのでずいぶんスマートになった。電子顕微鏡の写真もふえた。従来の顕微鏡写真のやぼったさが大分とれたのは写真の上達とトリミングの適切さで、今までのをつかったのもしばしば裏返して使って効果をあげている。頁数は減った。全体を分類の門を単位にしてその中で代表的の種類について生活史をたて糸にして形態を記述する方針は同じ。25の門に分かつのはシダと裸子植物段階の細分化がきいているため、材料も新しいものを加え、たとえば *Takakiales* なども載っている。藻類、菌類、管束隠花植物、裸子植物の各段階毎に総論的論議をなし後者でテロム説を特に強調している。写真は見ていても楽しいし、何にも増して日本で印刷、販売する関係で印刷の鮮明と廉価とが本を備え易くしている。(前川 文夫)

□ 李昌福 (Lee Tchang Bok): **韓国樹木図鑑** i—vi+pp. 1—348+index 42 pp. 729 figs. (Oct. 1966), 林業試験場 (非売品)。ソウル大学農科大学の李教授が、林業試験場の委嘱によって著作された。729 種類 (変種の図も時折入っている) の竹笹を含めた木本植物の図があり、部分図が沢山あるので同定の助けになること大である。図は中井先生の著作からの転写、ソウル大学標本館の標本から、また新たに資料を採集描画したものも多い。時折原図の線が生かされていないものがあるのは惜しい。学名は中井先生のもので主体であるが、所々に新研究の成果も入っている。シナサワグルミの学名が *Platycarya stenoptera* とあるのは *Pterocarya* を思い違ったものか。本文後半は科から変種までの検索表と、文献集を兼ねた樹木目録であり、学名への新知見も散見する。栽植品も図があるので、韓国自生樹木と共に比較検討に便であらう。非売品ではあるが、邦書との交換によってなら入手出来る (水原市、ソウル大学農科大学李昌福博士)。

(水島 正美)



M. MIZUSHIMA: Remarks in Alsinoideae



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